UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

FEDERAL HOUSING FINANCE AGENCY, AS CONSERVATOR FOR THE FEDERAL NATIONAL MORTGAGE ASSOCIATION AND THE FEDERAL HOME LOAN MORTGAGE CORPORATION, Plaintiff, -against- NOMURA HOLDING AMERICA INC. et al., Defendants.	11 Civ. 6201 (DLC)

CORRECTED DIRECT TESTIMONY OF JAMES R. BARTH

I, James R. Barth, declare as follows:

1. My background consists of academic and government work focusing on financial institutions and markets, including their regulation and supervision. I earned a Ph.D. in economics at The Ohio State University and am currently the Lowder Eminent Scholar in Finance at Auburn University, a Senior Finance Fellow at the Milken Institute, and a Fellow at the Wharton Financial Institutions Center. I have served on the faculty at Auburn University since 1989 and I previously served on the faculty at George Washington University for 15 years. My teaching and research have focused on financial institutions and markets throughout my 40-year academic career. In my scholarly research and government service, I have studied the

PLAINTIFF'S EXHIBIT
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performance of hundreds of financial institutions, including the causes of distress for many of those that failed.

2. In addition, I have served as Director of the Office of Policy and Economic Research of the Federal Home Loan Bank Board and Chief Economist of the Office of Thrift Supervision. I have also held positions as Visiting Scholar at the Congressional Budget Office, the Federal Reserve Bank of Atlanta, the Office of the Comptroller of the Currency, and the World Bank. I served, moreover, as a member of the Advisory Council of George Washington University's Financial Services Research Program. My experience and my knowledge of the performance and regulation of financial institutions and markets have resulted in my being invited to testify before United States Congressional Committees on several occasions.

3. I have published approximately 300 professional and scholarly articles, and coedited or coauthored several books, including: *The Great Savings and Loan Debacle* (American Enterprise Institute Press, 1991), *The Future of American Banking* (Columbia University Seminar Series, M.E. Sharpe, Inc., 1992), *The Reform of Federal Deposit Insurance* (Harper Business, 1992), *Restructuring Regulation and Financial Institutions* (Milken Institute Press, 2000), *The Savings and Loan Crisis: Lessons from a Regulatory Failure* (Kluwer Academic Publishers, 2004), *Rethinking Bank Regulation: Till Angels Govern* (Cambridge University Press, 2006), *Global Banking Regulation and Supervision: What Are the Issues and What Are the Practices?* (Nova Science Publishers, 2009), *The Rise and Fall of the U.S. Mortgage and Credit Markets: A Comprehensive Analysis of the Meltdown* (John Wiley & Sons, 2009), *Research Handbook on International Banking and Governance* (Edward Elgar Publishing, 2012), *Guardians of Finance: Making Regulators Work for Us* (MIT Press, 2012), and *Fixing the Housing Market: Financial Innovations for the Future* (Prentice Hall, 2012).

4. **Plaintiff's Exhibit ("PX") 1321** is a copy of my curriculum vitae.

5. Based on a review of the Amended Complaint filed by the Federal Housing Finance Agency ("FHFA"), I understand that between November 30, 2005 and April 30, 2007, The Federal National Mortgage Association ("Fannie Mae") and The Federal Home Loan Mortgage Corporation ("Freddie Mac") (collectively the "GSEs") purchased over $2 billion in private-label residential mortgage-backed securities (the "At-Issue Certificates") issued in connection with seven Nomura-sponsored securitizations (the "At-Issue Securitizations").

6. Defendants' expert, Kerry D. Vandell, Ph.D., was asked to, among other things, "[d]escribe the factors that contributed to the housing and mortgage market boom of 2000 to 2006, as well as its subsequent decline[,]" and to "[d]escribe the impact of the nationwide decline in home prices and the subsequent deterioration in the economy on the incidence of mortgage default[.]" *See* Expert Report of Kerry D. Vandell, Ph.D., July 9, 2014 ("Vandell Report"), ¶ 8. Professor Vandell asserts that "the change in macroeconomic conditions," including declines in house prices, increases in unemployment and reductions in market liquidity, were "unrelated to the origination of the At-Issue Loans or any alleged misrepresentations about their characteristics[.]" *Id.*, ¶¶ 194, 202-04, 211-12, 221.

7. I have been asked by counsel for FHFA to review Professor Vandell's work and analyze whether he actually establishes that the declines in home prices, increases in unemployment rates, and reductions in market liquidity that occurred in the period after the issuance of the At-Issue Certificates were wholly unrelated to underwriting defects, misrepresentations and omissions of the types FHFA alleges (the "Alleged Underwriting Defects"). I use the phrase "of the types" here because this one case is part and parcel of a broader problem with respect to misrepresentations and omissions in other private label securitizations, including but not limited to other private label securitizations in which Defendants here were involved.

8. I have concluded that Professor Vandell has not established that these changes in economic conditions were unrelated to the Alleged Underwriting Defects for several reasons:

- First, Professor Vandell's own analysis implies that the Alleged Underwriting Defects contributed to the housing price bubble by increasing the supply of credit to unqualified borrowers. As Professor Vandell recognizes, increases in the supply of credit associated with securitization facilitated the unprecedented increases in mortgage lending, the homeownership rate, and housing prices that occurred during the housing boom.

- Second, Professor Vandell's opinion implies that the Alleged Underwriting Defects contributed to the unprecedented decline in housing prices that occurred when the housing bubble burst not only by contributing to the unsustainable housing price bubble, but also by reducing the quality of loans originated during the housing boom, which exacerbated the resulting housing crisis.

- Finally, as Professor Vandell recognizes, the bursting of the housing price bubble triggered a financial crisis and an ensuing severe recession, which, in turn, further exacerbated the housing crisis.

In other words, Professor Vandell's own work, as well as substantial economic evidence that I will discuss, establishes that the decline in housing prices, increase in unemployment, and reduction in liquidity that occurred after the issuance of the At-Issue Certificates were related to the Alleged Underwriting Defects.

9. While Professor Vandell recognizes that increases in the supply of credit associated with securitization facilitated the unprecedented increases in mortgage lending, home ownership, and housing prices that occurred during the housing boom, he ignores the role of the Alleged Underwriting Defects. But it is clear that the Alleged Underwriting Defects expanded the supply of credit and, therefore, contributed to the housing price bubble.

10. Scholars now generally agree that a housing price bubble formed in the United States at some point during the period 1995 to 2006. Although the precise timing of the start of the bubble is less clear, there seems to be a consensus that it existed by 2002 or 2003. For example, Case and Shiller found evidence of a house price bubble in 2003 (Karl E. Case and

Robert J. Shiller, "Is There a Bubble in the Housing Market?," 2 *Brookings Papers on Economic Activity* (2003), 299-362 at 341) (**PX 1392)**), while the Federal Reserve's Jane Dokko, et al., date the bubble as starting after 2002 (Jane Dokko, Brian Doyle, Michael T. Kiley, Jinill Kim, Shane Sherlund, Jae Sim, and Skander Van den Heuvel, "Monetary Policy and the Housing Bubble," Finance and Economics Discussion Series, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, (2009), at 1, 23) (**PX 1394**)). In his published work, Professor Vandell appears to date the start of the bubble to 2003. *See* Major Coleman IV, Michael LaCour-Little, and Kerry D. Vandell, "Subprime lending and the housing bubble: Tail wags dog?," 17 *Journal of Housing Economics* (2008), 272-290 at 272 (**PX 1393**).

11. This bubble was a period of unusual house price appreciation, which resulted in elevated home prices that were sustained not by fundamental values, but rather by market participants' beliefs that prices would subsequently increase. It formed as home prices across the country increased each year from the mid-1990s to 2006, and moved out of line with fundamentals like household income. **Defendants' Exhibit ("DX") 2731** illustrates the rapid and, indeed, unprecedented increase in home prices during this period. This price appreciation was even more remarkable in certain sections of the country. The so-called "sand states" of Arizona, California, Florida, and Nevada, for example, exhibited dramatically larger spikes and subsequent declines in housing prices than did the United States as a whole.

12. As Professor Vandell recognizes, the housing price bubble was "[t]riggered in part by the increase in demand for homes" that was "accompanied by rapid growth of the mortgage lending market." Vandell Report, ¶¶ 45-46. An oversupply of mortgage credit enabled borrowers to bid up housing prices, thereby fueling a bubble in which cheap credit and easy underwriting helped qualify more consumers for mortgages, which increased demand for houses, which in turn increased house prices. **DX 2733** shows that aggregate mortgage debt in

the United States more than doubled between 2000 and the first quarter of 2008 from approximately $4.5 trillion to $10.7 trillion. **DX 2734** shows that mortgage debt grew from approximately 50% of gross domestic product ("GDP") in 2000 to 77.6% of GDP by 2007. **DX 2735** shows that the value of residential mortgage loan originations, which was approximately $1.0 trillion in 2000, ranged from approximately $2.2 trillion to approximately $3.9 trillion per year during the period from 2001 to 2007. **DX 2744** shows that the growth in subprime mortgage loan originations was even more dramatic, as such originations grew from approximately $100 billion in 2000 to $625 billion in 2005. As a result, subprime loans as a percentage of all new mortgage loans grew from 9.5 percent in 2000 to 20 percent in 2005, as **DX 2745** shows, and Alt-A lending and home equity loans also grew substantially.

13. Professor Vandell also recognizes that the growth in mortgage originations generally and subprime originations in particular was facilitated by growth in the securitization of residential mortgage loans. Vandell Report, ¶¶ 99-100; *see also id.*, ¶¶ 47-8. **DX 2736** shows that the value of loans securitized quadrupled between 2000 and 2003, growing from approximately $550 billion in 2000 to over $2.7 trillion in 2003, and the annual value of loans securitized ranged from approximately $1.8 trillion to $2.2 trillion from 2004 to 2007. **DX 2737** shows that during the period from 2000 to 2006, the percentage of mortgages that were securitized increased and the share of total securitizations attributable to non-agency (*i.e.*, private-label) mortgages increased, while the share of securitizations attributable to agency mortgages decreased. The increase in securitization rates was even greater for subprime mortgages: in 2001, approximately 50% of subprime mortgage loans were securitized, but by 2005 and 2006, more than 80% of subprime mortgage loans were securitized. **DX 2747** shows that private-label residential mortgage-backed securitization increased from less than $150 billion in 2000 to more than $1.1 trillion in 2005 and 2006, and most of the increase in private-

label securitizations consisted of nonprime securitizations. Between 2005 and 2006, Nomura securitized over $17.2 billion in residential mortgage-backed securities. Amended Compl. ¶ 68. Academic studies have found that the securitization of subprime mortgage loans increased the quantity of originated subprime mortgages, which caused housing prices to increase further during the boom. These studies include Atif Mian and Amir Sufi, "The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis," *Quarterly Journal of Economics* (November 2009), 1449-96 at 1449 (finding that subprime ZIP codes "experience[d] an unprecedented relative growth in mortgage credit" from 2002 to 2005 that was "closely correlated with the increase in securitization of subprime mortgages.") (**PX 1397**); Taylor D. Nadauld and Shane M. Sherlund, "The impact of securitization on the expansion of subprime credit," 107 *Journal of Financial Economics* (2013), 454-76, at 473 (finding that "increased securitization activity has a positive, economically meaningful impact on the extension of credit in the primary mortgage market.") (**PX 1398**); and Andrey Pavlov and Susan Wachter, "Subprime Lending and Real Estate Prices," 39 *Real Estate Economics* (2011), 1-17, at 1-2, 9-15 (finding that "subprime loans ... induce higher price appreciation in up markets" by allowing for "more borrowing than otherwise would occur[.]") (**PX 1399**).

14. This research supports my opinion that increased securitization activity caused an increase in the supply of credit in the primary mortgage market; that subprime ZIP codes experienced an unprecedented relative growth in mortgage credit from 2002 to 2005 that was closely correlated with the increase in securitization of subprime mortgages; and that subprime loans in this bubble period induced higher price appreciation by allowing for more borrowing than otherwise would occur.

15. As Professor Vandell also recognizes, one of the factors that contributed to the increase in the supply of credit (and the related increase in housing prices) was a relaxation of

underwriting guidelines, and the related expansion of subprime lending. *See* Vandell Report, § VII.B.3; ¶ 55-6. Professor Vandell recognizes that underwriting guidelines "specify the parameters or benchmarks that are generally to be followed by underwriters when issuing a mortgage loan and setting its terms." *Id.*, ¶ 73. These parameters include required values for, among other things, credit scores, LTV ratios, and debt-to-income ratios, and may vary depending on occupancy type and other factors. *Id.* The supply of credit increases when underwriting guidelines are relaxed (or, as Professor Vandell states, "expanded"), because more buyers qualify for loans. *Id.*, ¶ 74.

16. Professor Vandell fails to acknowledge, however, that approving loans that did not comply with stated underwriting guidelines, and not disclosing this practice to investors, further expanded the supply of credit by allowing additional, unqualified borrowers to obtain loans and by facilitating the securitization of those loans. FHFA alleges that Defendants falsely represented that the mortgage loans in the supporting loan groups for the At-Issue Certificates complied with stated underwriting guidelines that were intended to assess the creditworthiness of the borrowers, the ability of the borrowers to repay their mortgage loans, and the adequacy of the mortgaged properties as security for the loans. FHFA also alleges that these misrepresentations and omissions facilitated the sale of the At-Issue Certificates in the Securitizations. I understand that one of FHFA's experts, Robert W. Hunter, has analyzed with respect to each Securitization a sample of approximately 100 mortgage loans from each of the supporting loan groups backing the certificates purchased by the GSEs and found that about 67% of these mortgage loans were not originated in accordance with the requirements of the relevant originator's underwriting guidelines, which supports FHFA's allegation. Professor Vandell notes that underwriting guidelines often allow for exceptions when other compensating factors support the underwriting decision. Vandell Report, ¶¶ 107-8. However, I understand that Mr. Hunter did not make a

defect finding if he concluded that there were one or more compensating factors sufficient to offset increased credit risk presented by any exceptions to the underwriting guidelines. Thus, the Alleged Underwriting Defects directly contributed to the housing price boom by supplying credit to borrowers who otherwise would not have qualified for mortgage loans.

17. This conclusion is supported by several recent academic studies. In particular, two recent academic studies have found that private-label securitization reduced the incentives of lenders to carefully screen borrowers. These studies provide empirical evidence that the subprime credit expansion was associated with securitization activity that reduced lenders' incentives to carefully screen borrowers, particularly with regards to soft information (i.e., information that is not easily documentable or verifiable), and that lenders relaxed screening of low-documentation loans in the subprime market on dimensions that are easily manipulated because they are unreported to investors. These studies are Nadauld and Sherlund (2013) (**PX 1398** at 466-70, 470), which provides empirical evidence that "the subprime credit expansion was associated with securitization activity that reduced lenders [sic] incentives to carefully screen borrowers, particularly with regards to soft information[,]" and Benjamin J. Keys, Amit Seru and Vikrant Vig, "Lender Screening and the Role of Securitization: Evidence from Prime and Subprime Mortgage Markets," 25 *The Review of Financial Studies* (2012), 2071-2108, at 2075 (**PX 1396**), which provides "evidence that lenders relax screening of low-documentation loans in the subprime market on dimensions that are easily manipulated because they are unreported to investors."

18. Two other recent studies have found evidence of significant misrepresentations concerning borrower quality in private-label securitizations – with one finding frequent underreporting of second liens, owner occupancy misreporting, and appraisal overstatements among securitized non-agency loans during the period from 2002 to 2007, and the other finding a

significant degree of misrepresentation of collateral quality across non-agency RMBS pools. These studies are John M. Griffin and Gonzalo Maturana, "Who Facilitated Misreporting in Securitized Loans?" April 12, 2014 (*Journal of Finance*, forthcoming) (finding frequent underreporting of second liens, owner occupancy misreporting, and appraisal overstatements among securitized non-agency loans during the period from 2002 to 2007) (**PX 1395**) and Tomasz Piskorski, Amit Seru and James Witkin, "Asset Quality Misrepresentation by Financial Intermediaries: Evidence from RMBS Market," Columbia Business School Research Paper No. 13-7 , February 12, 2013, at 3 (*Journal of Finance*, forthcoming) (finding "a significant degree of misrepresentation of collateral quality across non-agency RMBS pools") (**PX 1400**). These studies support my conclusion that the Alleged Underwriting Defects directly contributed to the housing price boom by supplying credit to borrowers who otherwise would not have qualified for mortgage loans.

19. The house price bubble peaked in 2006, and subsequently burst. House prices nationally began to fall dramatically in 2007, as illustrated by **DX 2731**. From April 2007 to May 2009, home prices in the U.S. fell by nearly a third, as evidenced in **DX 2758**. Moreover, prices declined on a year-over-year basis for six consecutive years, from 2006 through 2011, as shown in **DX 2759**. This long period of consecutive year-over-year price declines is particularly unusual, as housing prices between 1945 and 2005 had declined on a year-over-year basis only once (by one percent in 1990). *See* Vandell Report, ¶ 110 & **DX 2759**.

20. One of the principal reasons prices ultimately declined as much as they did when the bubble burst is that prices had increased during the bubble to levels that experience has shown to be unsustainable and unjustified by economic fundamentals. By mid-2006, the National Association of Realtors' Housing Affordability Index was lower than it had been at any time during the previous 16 years, indicating that many potential buyers could no longer afford

homes – a fact that is illustrated by **DX 2760**. The Housing Affordability Index measures the ability of a family earning the median income to purchase a median-priced home. A value of 100 means that a family with the median income has exactly enough income to qualify for a mortgage on a median-priced home, and a value above 100 signifies that a family earning the median income has more than enough income to qualify for a mortgage loan on a median-priced home, assuming a 20% down payment. Because the magnitude of the decline in housing prices after the bubble burst was related to the magnitude of the increase in housing prices that occurred during the housing boom, it necessarily follows that each of the factors that contributed to the unsustainably high housing prices (including the Alleged Underwriting Defects) also contributed to the decline in housing prices after the housing bubble burst.

21. The Alleged Underwriting Defects also contributed to the housing price bust via their impact on the home-building industry. When prices increased during the housing boom, the home-building industry responded by accelerating the construction of new homes. As **DX 2762** shows, annualized housing starts generally increased from 2000 to 2005, and reached a peak of 1.8 million in January 2006. Ultimately, the supply of housing exceeded demand, which led to an increase in vacancy rates (as **DX 2763** shows), particularly in the sand states (as **DX 2674** shows). These rising vacancy rates put downward pressure on home prices, by motivating sellers to cut prices. This factor was recognized by U.S. Department of Housing and Urban Development Office of Policy Development and Research, which stated in its January 2010 "Report to Congress on the Root Causes of the Foreclosure Crisis" (**PX 1402** at 18) that, "House price declines were further exacerbated by an oversupply of new homes, particularly in markets where rapid house price growth had spurred significant housing demand by investors and borrowers that were aided by the ready availability of mortgage financing."

22. As Professor Vandell recognizes, falling home prices also triggered an increase in delinquencies and defaults. Vandell Report, ¶¶ 128-44. When a home's price falls below the outstanding principal balance of the mortgage on the home, the owner is left with negative equity, which makes default an attractive option (particularly when loan provisions or state laws provide the lender with no recourse to the borrower's other assets). *Id.*, ¶ 128-9. By the end of 2009, approximately 24% of all mortgaged residential properties in the U.S. had negative equity, with substantially higher negative equity percentages in the sand states (48% in Florida, 70% in Nevada, 51% in Arizona, and 35% in California). *Id.*, ¶ 128 & note 171. This situation occurred because subprime loans had relatively high LTV ratios (any given decline in housing prices is more likely to result in negative equity when LTV ratios at origination are high) and because home prices declined substantially. *Id.*, ¶ 128.

23. FHFA alleges that many of the mortgage loans backing the At-Issue Certificates were not originated in accordance with the requirements of the applicable originator's underwriting guidelines, and that reported LTV ratios frequently were understated (because appraised values were overstated), thereby increasing the probability of default (as well as the severity of losses given default). Indeed, I understand that Dr. John A. Kilpatrick, one of FHFA's experts, has opined that the appraisals were "systematically overvalued" and that the sample loans he reviewed had "substantially higher [LTV] ratios than represented" and that "each Securitization contained a substantial fraction of sample loans with [LTV] ratios over 100%, while across the board, Nomura represented that no loans had [LTV] ratios over 100%." Understated LTV ratios like these necessarily exacerbated the incidence and extent of negative equity that triggered the subsequent increases in delinquency and defaults (and losses associated with delinquencies and defaults) – a fact that is consistent with academic studies finding that misrepresented non-agency securitized loans had significantly higher delinquency and default

rates than other loans. This mechanism, therefore, is another way in which the Alleged Underwriting Defect contributed to the housing crisis.

24. Delinquencies soared when prices declined and the incidence and extent of negative equity increased. As **DX 2773** shows, between mid-2005 and late 2009, serious delinquencies on subprime mortgages increased from 5.7% to almost 30.6%, and serious delinquencies on prime mortgages increased approximately tenfold, from 0.7% to 7.0%. As would be expected, states that had larger house price declines experienced a higher frequency of defaults (**DX 2823**), and pre-foreclosure rates also increased as equity declined and negative equity increased. (As used by Professor Vandell, "pre-foreclosure short sale" refers to property that has started the foreclosure process – default or auction notice and sold before becoming bank owned.) The much higher delinquency rates led to sharp increases both in sales of real estate owned ("REO") by lenders (as a result of foreclosures), and pre-foreclosure short sales, as **DX 2774** shows. Short sales and sales of REO by lenders exacerbated the housing crisis by increasing the supply of homes on the market, further depressing housing prices. Vandell Report, ¶¶ 135-6 & **DX 2775** (depicting the volume of REO sales and short sales). Falling house prices thus led to a vicious cycle in which defaults on mortgages and unsold homes led to further declines in house prices, which only further exacerbated the housing crisis. Consistent with FHFA's allegations, several published studies have found that the default rates of subprime loans originated during the housing boom were higher than would be expected given the reported characteristics of those loans. Of particular note, in my opinion, is Yuliya Demyanyk & Otto Van Hemert, "Understanding the Subprime Mortgage Crisis," 24 *The Review of Financial Studies* (2011), 1848-1880 (**PX 1405**), which finds that subprime "loan quality—adjusted for observed characteristics and macroeconomic circumstances—deteriorated monotonically between 2001 and 2007" and that "the effect of different loan-level characteristics as well as low

house price appreciation was quantitatively too small to explain the poor performance of 2006 and 2007 vintage loans." Also of note is Amiyatosh Purnanandam, "Originate-to-distribute Model and the Subprime Mortgage Crisis," 24 *The Review of Financial Studies* (2011), 1881-1915 (**PX 1401**), which shows that "banks with high involvement in the [originate-to-distribute] market during the pre-crisis period originated excessively poor-quality mortgages" and that this "significantly contributed to the [] subprime mortgage crisis." Moreover, academic studies have found that misrepresented non-agency securitized loans had significantly higher delinquency and default rates than other loans. *See* Griffin and Maturana (2014), at 2 (**PX 1395**); Piskorski, Seru & Witkin (2013), at 55 (**PX 1400**). As a result of the financial crisis that began in the summer of 2007, financial institutions failed, liquidity froze, credit was curtailed, and the government intervened through various actions to stabilize the financial system. By December 2007, the United States had entered into a recession. This recession lasted for one and a half years, until June 2009, making it the longest recession since the Great Depression.

25. The consensus view, in hindsight, is that this financial crisis was triggered by the bursting of the house price bubble. For example, Dr. Daniel Nolle of the Office of the Comptroller of the Currency stated that, "[t]he consensus view, as reflected in the Financial Crisis Inquiry Commission Report (2011, p. xvi), is that 'the collapse of the housing bubble [in the U.S.] … was the spark' that triggered the financial crisis, but the crisis quickly expanded across financial instruments, markets, networks, and national borders, exposing financial system vulnerabilities that had been building in many countries." A similar view is expressed by Yale's Professor Shiller, who concludes that "[t]he housing bubble was a major cause, if not *the* cause, of the subprime crisis and of the broader economic crisis . . . ." Professor Vandell also recognizes that the bursting of the housing bubble affected the broader economy. Vandell Report, ¶¶ 109-12 & 171-4.

26. The problems in the housing sector began to adversely affect certain housing-related investments in the spring of 2007. In particular, on May 4, 2007, UBS shut down its internal hedge fund, Dillon Read, after it suffered approximately $125 million in subprime-related losses. Later that month, Moody's put 62 tranches of 21 U.S. subprime deals on review for a possible downgrade, which led to a deterioration of the prices of some mortgage-related securities. On June 7, 2007, Bear Stearns Asset Management informed investors that it was suspending redemptions from its High-Grade Structured Credit Strategies Enhanced Leverage Fund, a leveraged fund that had invested in collateralized debt obligations ("CDOs") backed by subprime loans and had lost 23% of its value during the first four months of 2007. In June 2007, Standard & Poor's and Moody's Investor Services downgraded over 100 bonds backed by second-lien subprime mortgages. On July 11, 2007, Standard & Poor's placed 612 residential mortgage-backed securities backed by U.S. subprime collateral on CreditWatch with negative implications. On July 31, 2007, Bear Stearns liquidated the High-Grade Structured Credit Strategies Enhanced Leverage Master Fund and another hedge fund that had invested in sub-prime related assets and had been unable to meet margin calls from many of their trading counterparts. On the same date, American Home Mortgage Investment Corp. announced its inability to fund lending obligations; it subsequently declared bankruptcy on August 6. Then, on August 9, 2007, French bank BNP Paribas announced that it had temporarily suspended redemptions for three of its investment funds that had invested in sub-prime residential mortgage-backed securities because, as it stated in its press release announcing the action, the "complete evaporation of liquidity in certain market segments of the U.S. [securitization] market [had] made it impossible to … value fairly the underlying US ABS assets" in the three funds. The reduction in the liquidity of subprime RMBS during this period was caused by market participants' concerns about the credit quality of the underlying loan collateral arising from

increases in delinquency and default rates of subprime loans, which were related, at least in part, to deviations from stated underwriting guidelines that I have already discussed.

27. BNP Paribas's announcement is considered by many to have been the trigger for the ensuing global financial crisis. *See* Vandell Report, ¶ 172. Following this event, money market participants became reluctant to lend to each other, and short-term rates increased on various instruments that had previously been considered to be safe. In addition, many quantitative hedge funds – funds that use trading strategies based on statistical models and that tend to have highly correlated positions – suffered large losses, triggering margin calls and fire sales. These developments created substantial uncertainty about the solvency and liquidity of counterparties, which affected the real economy when financial intermediaries began to hoard cash and stop lending.

28. As Professor Vandell recognizes, the onset of the financial crisis is also reflected by the Kansas City Financial Stress Index ("KCFSI") – an overall index of financial stress constructed from 11 component variables by the Federal Reserve Bank of Kansas City and published for the period from 1990 to present. Vandell Report, ¶ 173. Financial stress is an interruption in the normal functioning of financial markets that is associated with greater volatility in asset prices, reductions in asset prices, increased borrowing costs, a decreased willingness to hold risky assets, and a decreased willingness to hold illiquid assets. As reflected in **PX 1960**, a positive value of the index indicates that financial stress is above the long-run average, while a negative value signifies that financial stress is below the long-run average. The KCFSI had negative values in the several years prior to July 2007, but began increasing in value thereafter. Vandell Report, ¶ 173 & **PX 1960**. The KCFSI reached its all-time high of 5.93 in October 2008.

29. Professor Vandell recognizes that, as housing prices declined, "losses and write-downs occurred across the entire financial sector." Vandell Report, ¶ 110. Financial institutions globally have attributed an estimated $2.1 trillion of losses and write-downs to the mortgage market decline and subsequent turmoil in financial markets. These losses eroded lending institutions' capital, causing lending standards and margins to tighten, and fire sales of assets to occur. As more banks tried to sell out of their positions, asset prices plummeted further, and concerns about illiquidity turned into concerns about solvency, leading to runs on financial institutions and a cessation of interbank lending. These events ultimately led to severe financial stress at several major financial institutions, including Bear Stearns, Lehman Brothers, Merrill Lynch, and AIG.

30. The effects of the financial crisis on the real sector of the economy were devastating. As Professor Vandell states, and as can be seen in **DX 2751**, real gross domestic product contracted by approximately 4.3% over the course of the recession and by 2.2% in the fourth quarter of 2008 alone. Vandell Report, ¶ 111 & **DX 2751**. Moreover, unemployment in the U.S. more than doubled from 4.4% in May 2007 to 10.0% in the fourth quarter of 2009 – a loss of more than 7 million jobs. *Id.*, ¶ 111 & **DX 2752**.

31. The bursting of the housing price bubble also adversely affected the economy in other ways. In particular, as reflected in **DX 2754**, household wealth declined as housing prices declined, leading to a decline in consumption expenditures and durable goods orders. In addition, employment in the residential construction sector declined sharply when the housing bubble burst. Indeed, data from the Bureau of Labor Statistics shows that seasonally adjusted residential construction employment peaked in April 2006 and, by December 2008, had declined by almost 30%.

32. The financial crisis and recession also exacerbated the housing crisis in several ways. To begin with, and as Professor Vandell recognizes, the increase in unemployment reduced the demand for housing (exacerbating the housing price decline) and increased the incidence of delinquencies and defaults. Vandell Report, ¶¶ 145-7. In addition, and again as recognized by Professor Vandell, banks tightened their lending standards and the market for private-label mortgage-backed securities collapsed, reducing the supply of credit to borrowers, and thereby further reducing the demand for housing (further exacerbating the housing price decline). *Id.*, ¶¶ 124-7 & 148-53.

33. My analysis establishes that the declines in home prices, increases in unemployment rates, and reductions in market liquidity that occurred in the period after the issuance of the At-Issue Certificates were, to some extent, caused by the Alleged Underwriting Defects. Moreover, the At-Issue Certificates, with their alleged underwriting defects, misrepresentations, and omissions, contributed to the upward pressure on home prices by increasing the supply of credit during the house price bubble, which exacerbated the declines in home prices that occurred when the bubble burst. Furthermore, the defaults of loans in the supporting loan groups for the At-Issue Certificates also contributed to the subsequent decline in home prices. Thus, the At-Issue Securities with their alleged underwriting defects, misrepresentations, and omissions contributed to the housing crisis that in turn contributed to a broader financial crisis, which in turn led to the worst recession since the Great Depression. While factors other than the Alleged Underwriting Defects also affected housing prices, unemployment rates and market liquidity, the evidence indicates that the Alleged Underwriting Defects contributed to these macroeconomic conditions. Therefore, Professor Vandell's assertion that "the change in macroeconomic conditions" that occurred after the At-Issue

Securities were issued were "unrelated to the origination of the At-Issue Loans or any alleged misrepresentations about their characteristics" is incorrect.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is a true and correct statement of my opinions in this Action.

Executed on this 29th day of March, 2015 in New York, New York.

James R. Barth

James R. Barth